



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

## NOTICE OF ALLOWANCE AND FEE(S) DUE

22879 7590 06/14/2011  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
3404 E. Harmony Road  
Mail Stop 35  
FORT COLLINS, CO 80528

EXAMINER

WHITMORE, STACY

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 06/14/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,625	08/20/2003	Christopher A. Poirier	200208727-1	7519

TITLE OF INVENTION: SYSTEM FOR AND METHOD OF CONTROLLING A VLSI ENVIRONMENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	09/14/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail**

**Mail Stop ISSUE FEE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
or Fax (571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the **ISSUE FEE** and **PUBLICATION FEE** (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

**CURRENT CORRESPONDENCE ADDRESS** (Note: Use Block 1 for any change of address)

**Note:** A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

22879 7590 06/14/2011  
**HEWLETT-PACKARD COMPANY**  
Intellectual Property Administration  
3404 E. Harmony Road  
Mail Stop 35  
FORT COLLINS, CO 80528

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,625	08/20/2003	Christopher A. Poitric	200208727-1	7519

**TITLE OF INVENTION:** SYSTEM FOR AND METHOD OF CONTROLLING A VLSI ENVIRONMENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	09/14/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
WHITMORE, STACY	2825	716-136000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB-112) attached;  
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB-117, Rev. 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, \_\_\_\_\_  
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. \_\_\_\_\_  
\_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.111. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reuply any previously paid issue fee shown above)

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims **SMALL ENTITY** status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming **SMALL ENTITY** status. See 37 CFR 1.27(g)(2).

**NOTE:** The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,625	08/20/2003	Christopher A. Poirier	200208727-1	7519

22879 7590 06/14/2011  
**HEWLETT-PACKARD COMPANY**  
Intellectual Property Administration  
3404 E. Harmony Road  
Mail Stop 35  
FORT COLLINS, CO 80528

EXAMINER	
WHITMORE, STACY	
ART UNIT	PAPER NUMBER
2825	

DATE MAILED: 06/14/2011

## **Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)** (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 2285 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 2285 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

## Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**Notice of Allowability****Application No.**

10/644,625

**Examiner**

STACY WHITMORE

**Applicant(s)**

POIRIER ET AL.

**Art Unit**

2825

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to telephone conversation with Dan Hu on 6/7/2011.
2. ☒ The allowed claim(s) is/are 1, 3-8, 10-16, 18-32, renumbered per 37 CFR 1.126.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.

EXAMINER'S AMENDMENT

1. Claims 1, 3-8, 10-16, and 18-32 are allowed over the prior art of record.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in a telephone interview with Dan Hu on June 7, 2011.
4. The application has been amended as follows:  
In the claims:
  - I. Cancel claims 2, 9, and 17.
  - II. Delete claims 1, 3-6, 8, 10-13, 15-16, and 18-22, 24-27, and 29, and replace with the following amended claims 1, 3-6, 8, 10-13, 15-16, and 18-22, 24-27, and 29.

--

1. (Currently Amended) A system comprising:  
an integrated circuit on a VLSI die; and  
an embedded micro-controller constructed on the VLSI die, ~~the micro-controller adapted to monitor and control the VLSI environment to optimize the integrated circuit operation;~~  
wherein said embedded micro-controller is configured to:  
monitor ~~monitors~~ temperatures at a plurality of locations on the integrated circuit;  
monitor one or more parameters selected from the group consisting of: power supplied to the integrated circuit, an operating clock frequency of the integrated circuit, a power supply voltage supplied to the integrated circuit, and a power supply current supplied to the integrated circuit; and

control an environment of the VLSI die based on the monitored temperatures and the one or more parameters to enhance operation of the integrated circuit.

3. (Currently Amended) The system of claim 1 wherein the embedded micro-controller ~~is configured to control controls~~ at least one of the following ~~parameters~~:

temperatures at one or more locations on the integrated circuit;  
~~the integrated circuit power supply;~~  
the operating clock frequency of the integrated circuit;  
the power supply voltage supplied to the integrated circuit; and  
the power supply current supplied to the integrated circuit.

4. (Currently Amended) The system of claim 1 wherein the integrated circuit comprises two or more processor cores, each core having ~~[[a]]an~~ integer unit and a floating point unit, the ~~micro-controller system~~ further comprising:

temperature sensors at each of the integer units and floating point units on each of the cores.

5. (Currently Amended) The system of claim 1 further comprising:  
embedded ammeters constructed on the VLSI ~~integrated circuit die~~, the ammeters comprising voltage controlled oscillators.

6. (Currently Amended) The system of claim 1 further comprising:  
fuses that provide hardware selection of ~~VLSI integrated circuit environment the~~ one or more parameters ~~that are to be~~ monitored by the embedded micro-controller.

8. (Currently Amended) A method for monitoring and controlling an integrated circuit comprising:

providing an embedded micro-controller on a same VLSI die as the integrated circuit; [[and]]

~~monitoring, and controlling a VLSI environment of the integrated circuit with the embedded micro-controller; wherein~~

~~—said embedded micro-controller monitors~~ temperatures at a plurality of locations on the integrated circuit, and one or more parameters selected from the group consisting of: power supplied to the integrated circuit, an operating clock frequency of the integrated circuit, a power supply voltage supplied to the integrated circuit, and a power supply current supplied to the integrated circuit; and

controlling, with the embedded micro-controller, an environment of the VLSI die based on the monitored temperatures and the one or more parameters to enhance operation of the integrated circuit.

10. (Currently Amended) The method of claim 8 further comprising:

controlling, by the embedded micro-controller, one or more ~~processor~~ parameters selected from the group consisting of:

temperatures at one or more locations on the integrated circuit;

~~the integrated circuit power supply;~~

the operating clock frequency of the integrated circuit;

the power supply voltage supplied to the integrated circuit; and

the power supply current supplied to the integrated circuit.

11. (Currently Amended) The method of claim 8 further comprising:

controlling, using the embedded micro-controller, the ~~VLSI~~ environment to optimize an integrated circuit operating power level to approach a design limit.



12. (Currently Amended) The method of claim 8 further comprising:  
monitoring, using the embedded micro-controller, a temperature in a particular  
location of the integrated circuit; and  
reducing, using the embedded micro-controller, ~~[[a]]~~the power supply voltage in  
response to an over-temperature condition in the particular location.

13. (Currently Amended) The method of claim 8 further comprising:  
~~monitoring, using the embedded micro-controller, a temperature in a location of~~  
~~the integrated circuit; and~~  
reducing, using the embedded micro-controller, ~~a processor~~the operating clock  
frequency in response to an over-temperature condition in the integrated circuit.

15. (Currently Amended) The method of claim 8 further comprising:  
monitoring, using the embedded micro-controller, ~~current levels in the integrated~~  
~~circuit~~the power supply current using ammeters comprising one or more voltage  
controlled oscillators.

16. (Currently Amended) A computer program product comprising a non-  
transitory computer usable medium having computer readable program code embedded  
therein, the computer readable program code comprising:

code for controlling an embedded micro-controller constructed on a VLSI die  
with an integrated circuit ~~die with a processor~~, wherein ~~the code is for controlling the~~  
~~micro-controller to monitors and controls a VLSI environment of the processor; where;~~  
~~said embedded micro-controller monitors~~ monitor temperatures at a  
plurality of locations on the integrated circuit;

monitor one or more parameters selected from the group consisting of:  
power supplied to the integrated circuit, an operating clock frequency of the integrated  
circuit, a power supply voltage supplied to the integrated circuit, and a power supply  
current supplied to the integrated circuit; and

control an environment of the VLSI die based on the monitored temperatures and the one or more parameters to enhance operation of the integrated circuit.

18. (Currently Amended) The computer program product of claim 16 further comprising:

code for controlling, ~~by the embedded micro-controller~~[[,]] to control one or more ~~integrated circuit~~ parameters selected from the group consisting of:  
temperatures at one or more locations on the integrated circuit;  
~~the integrated circuit power supply;~~  
the operating clock frequency of the integrated circuit;  
the power supply voltage supplied to the integrated circuit; and  
the power supply current supplied to the integrated circuit.

19. (Currently Amended) The computer program product of claim 16 further comprising: code for controlling the ~~VLSI~~ environment to optimize an integrated circuit operating power level to approach a design limit.

20. (Currently Amended) The computer program product of claim 16, wherein the integrated circuit comprises a processor, the method further comprising:  
code for monitoring a temperature in a core of the processor; and  
code for reducing ~~[[a]]the~~ power supply voltage in response to an over-temperature condition in the core.

21. (Currently Amended) The computer program product of claim 16, wherein the integrated circuit comprises a processor, the method further comprising:  
code for monitoring a temperature in a core of the processor; and  
code for reducing ~~a processor~~ the operating clock frequency in response to an over-temperature condition in the core.

22. (Currently Amended) The computer program product of claim 16, wherein the integrated circuit comprises a processor, the method further comprising:  
code for monitoring a temperature in a first core of the processor; and  
code for transferring a processing workload from the first core to a second core of the processor in response to the temperature of said first core.

24. (Currently Amended) A system for monitoring and controlling an integrated circuit comprising:

means for providing an embedded micro-controller on a same VLSI die as the integrated circuit; and

means for ~~monitoring and controlling a VLSI environment of the integrated circuit with the embedded micro-controller~~[[.]]to:

~~wherein said embedded micro-controller monitors~~ monitor  
temperatures at a plurality of locations on the integrated circuit;

monitor one or more parameters selected from the group consisting of:  
power supplied to the integrated circuit, an operating clock frequency of the integrated circuit, a power supply voltage supplied to the integrated circuit, and a power supply current supplied to the integrated circuit; and

control an environment of the VLSI die based on the monitored  
temperatures and the one or more parameters to enhance operation of the integrated circuit.

25. (Currently Amended) The system of claim 24 further comprising:  
means for controlling, using the embedded micro-controller, the VLSI environment to optimize an integrated circuit operating power level to approach a design limit.

26. (Currently Amended) The system of claim 24 further comprising:  
means for reducing, using the embedded micro-controller, [[a]]the power supply voltage in response to an over-temperature condition at one of said plurality of locations.

27. (Currently Amended) The system of claim 24 further comprising:  
means for reducing, using the embedded micro-controller, ~~a processor~~ the  
operating clock frequency in response to an over-temperature condition in the  
integrated circuit.

29. (Currently Amended) The system of claim 1 wherein  
said embedded micro-controller is further ~~adapted~~ configured to detect a  
difference in temperatures between said plurality of locations on the integrated circuit  
and redistribute workload in response to said temperature difference. --.

5. Newly cited prior art but not relied upon:

Gschwind US Patent 6,948,082

Rusu US Patent 6,908,227

6. Any inquiry concerning this communication or earlier communications from the  
examiner should be directed to STACY WHITMORE whose telephone number is  
(571)272-1685. The examiner can normally be reached on Monday-Thursday, alternate  
Friday 6:30am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's  
supervisor, Jack Chiang can be reached on (571) 272-7483. The fax phone number for  
the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stacy A Whitmore/  
Primary Examiner  
Art Unit 2825

SAW  
June 8, 2011